Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_

**Yeast Respiration Lab**

Pre-AP Biology, Mrs. Krouse

**Background Information:**

In this lab, we will be measuring the rate of cellular respiration in yeast. Yeast are single-celled (aka unicellular) fungi. We will be putting yeast in an Erlenmeyer flask with water and sugar and measuring the rate of cellular respiration. We will measure the rate of cellular respiration by placing a balloon over the top of the flask to collect any gas produced by the yeast as a result of cellular respiration. Before beginning our measurements, we will need to place the flask (with all ingredients in the flask and the balloon over the top of the flask) in a hot water bath set at 55 degrees Celsius for two minutes to activate the yeast (which is in a state of dormancy when we purchase it at the grocery store to make bread). We will measure the circumference of the balloon every two minutes for 30 minutes.

Note: Table sugar’s “chemical name” is sucrose, which is a disaccharide. Yeast can break down sucrose into two monosaccharides (glucose and fructose) using an enzyme called sucrase.

**Pre-Lab Questions:**

1. What are the reactants that are necessary for cellular respiration to take place?
2. Which reactant provides energy for the creation of ATP during cellular respiration?
3. Which ingredient in the flask represents this “energy reactant?” How do yeast cells modify this ingredient to best use it during cellular respiration?
4. What gas will be created by the yeast during cellular respiration?
5. How will we measure the rate of cellular respiration for the yeast in the flask?

**Materials:** Record a list of materials for your lab group in the space below.

**Procedure:** Record the steps of the lab procedure in the space below and draw a picture of the lab set-up in the box given to the right.

**Safety:** List any safety concerns in the space below.

**Clean Up:** Provide a list of necessary steps to clean up your lab area in the space below.

**Data Collection (Chart) :** Record the circumference of the balloon every two minutes for 30 minutes in the chart given below.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Time (in min)** | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| **Circumference (in cm)** |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Time (in min)** | 18 | 20 | 22 | 24 | 26 | 28 | 30 |
| **Circumference (in cm)** |  |  |  |  |  |  |  |

**Data Analysis (Graph):** We will complete this portion of the lab next class.

**Discussion / Conclusion Paragraphs**: We will complete this portion of the lab next class.